

1.5

Vertical Bar Graphs and Horizontal Bar Graphs

At a Glance

PACING 1 day

Mathematical Goals

- Distinguish between vertical and horizontal bar graphs
- Distinguish how numerical data or categorical data are shown on a horizontal bar graph
- Answer questions using both kinds of bar graphs

Launch

Display Transparency 1.5A or have students look at the graph of Favorite Kinds of Pets in their books.

- *Why do you think this kind of bar graph is called a vertical bar graph?*
- *Look at the graph of Favorite Kinds of Pets with the bars going across the page. This kind of bar graph is called a horizontal bar graph. How are the two kinds of bar graphs alike and how are they different?*
- *Look over the questions that are asked. Work with a partner to answer them.*

To prepare students to make a horizontal bar graph of the Number of Pets data:

- *The graph of Number of Pets is a vertical bar graph.*
- *How do you think we can change this to a horizontal bar graph?*
- *On what axis will the data be displayed?*
- *On what axis will the frequencies be displayed?*
- *How can you set up the graph?*

Have students work in pairs to do the problem.

Materials

- Transparencies 1.5A and 1.5B
- Graph paper

Vocabulary

- vertical bar graph
- horizontal bar graph

Explore

The questions are similar to the ones that students have addressed before in other contexts. This problem focuses students' attention on how to determine the answers when using a vertical bar graph and when using a horizontal bar graph. Students may struggle with finding the range. Help them see that it is the range of the number of pets and not of the frequency. If students need assistance to find the median, remind them of any one of the methods used in Problems 1.2–1.4.

Summarize

Display Transparency 1.5B. Have the class discuss their responses to the questions. Have different students show the strategies they used with each kind of graph. This is another opportunity to have students think about ways to read graphs and about what the median is and how it is determined.

Materials

- Student notebooks

ACE Assignment Guide for Problem 1.5



Core 21

Other Extensions 33–39; unassigned choices from previous problems

Adapted For suggestions about adapting ACE exercises, see the *CMP Special Needs Handbook*.

Answers to Problem 1.5

- The graph at the right shows these data in light gray.
- 10 students. On the vertical bar graph, locate the data from 6 to 21 pets; add the heights of the bars to determine the total number of students. On the horizontal bar graph, locate the data from 6 to 21 pets; add the lengths of the bars to determine the total number of students.
- 0 pets. On each graph, locate the least number of pets on the data axis that has bars. This is 0 pets. There are 2 students with no pets.
- 21 pets. On each graph, locate the data axis and then name the greatest data value.
- 3.5 pets. For each graph, list the set of data in order from least to greatest. The median is the midpoint between 3 and 4, or 3.5.

- List the new set of data in order from least to greatest; 3 pets is the median. Adding a 1-unit bar to show one person having 7 pets and adding a 1-unit bar to each of the 1 and 3 number-of-pet bars will change each graph. The graph below shows the additional data in dark gray. Figure 1 reflects the addition.

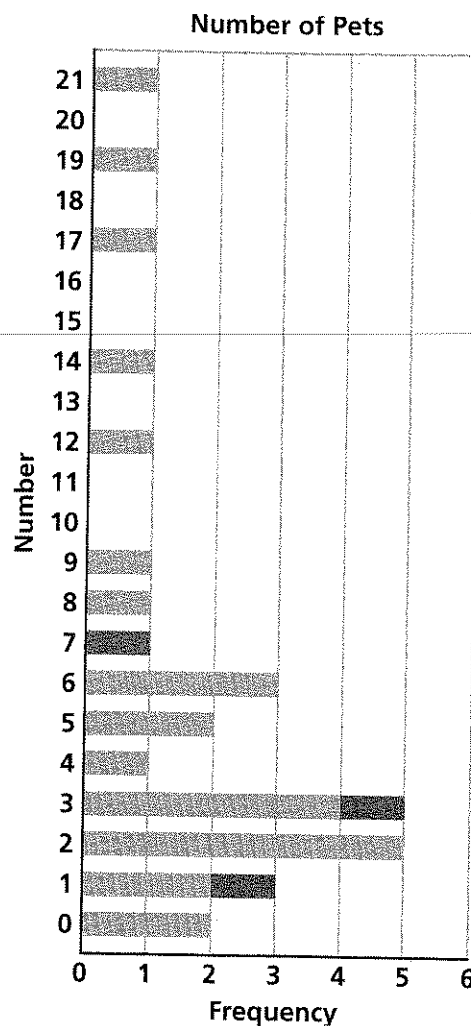


Figure 1

